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Enrollment Expansion and Academic Overcrowding in Germany*

The development of university enrollments in Germany during the last 200 years shows some remarkable patterns. Increases and decreases, succeeding one another in long, cyclical movements, suggest that academic careers experience surplus and deficit situations which move like the tides across the generations. Since the 18th century, four phases of development can be identified during which access narrowed due to a partial or general overcrowding of academic professions:

In the first phase from 1780 until shortly after 1800, the two major careers (Protestant clergy, jurists and cameralists in higher government service) were overcrowded in Prussia and in northern Germany. Even before the Prussian collapse in 1806 there were references to "so many old candidates for whom there are no positions".¹

In the second phase, following a deficit "immediately after the war," a great prerevolutionary oversupply crisis in academic careers began in the middle of the 1820s. Along with law graduates, it especially affected Protestant theologians and also touched secondary teaching, a career newly established in connection with the educational reforms. Whereas the "overproduction" of lawyers "had already run its course by the middle of the 1830s," the much more profound crisis of the Protestant clergy continued into the 1840s and diminished only in the 1850s since the excess of candidates decreased only gradually.²

* This essay was translated from the original German by Hannelore Flessa-Jarausch.

1. *Allgemeines Repertorium für die theologische Literatur und kirchliche Statistik*, 30 (1840), 72-86; W. Dieterici, *Geschichtliche und statistische Nachrichten über die Universitäten im preussischen Staate* (Berlin, 1836), 120 ff.
2. J. G. Hoffmann, *Sammlung kleiner Schriften staatswirthschaftlichen Inhalts* (Berlin, 1843), 204 ff.; J. R. Gillis, *The Prussian Bureaucracy in Crisis, 1840-1860* (Stanford, 1971); W. Bleek, *Von der Kameralausbildung zum Juristenprivileg* (Berlin, 1972); *Allgemeine Kirchenzeitung*, 7 (1828), 58, 467-469; H. Titze, "Lehramtsüberfüllung und Lehrerauslese im Obrigkeitsstaat. Zur Steuerung des Lehrernachwuchses im Königreich Hannover 1830-1865," *Die Deutsche Schule*, 73 (1981) 19-30; J. Conrad, *Das Universitätsstudium in Deutschland während der letzten 50 Jahre* (Jena, 1884), 105; G. Schlosser, *Über die Abnahme des Studiums der Theologie* (Leipzig, 1873), 2.

This lengthy overcrowding was still a living memory when, in the Wilhelmian Empire, the third phase, a renewed oversupply in academic careers arose which spread to almost all disciplines by the century's end. In comparison to the earlier crisis, the oversupply problem of the 1880s and 1890s took a more critical form. With the expansion of most academic careers, the number of those affected reached into the thousands for the first time. The oversupply crisis also included more careers than in the first half of the 19th century; the previously mildly affected professions of doctors as well as secondary school and university teachers were now fully involved.³

With the predicament of a slowly growing academic employment market, the continual oversupply problem found its sharpest expression in Germany to date in the 1920s and 1930s, the fourth phase. Preceding the drastic Nazi measures, the pool of "superfluous" graduates threatened by the "academic job crisis" rose into the tens of thousands. The Weimar crisis was complicated by the historically new factor of female study which expanded greatly in the second half of the 1920s.⁴

To the individual it seems an unfortunate accident to be born into a generation for whom access to academic careers is more restricted than for the preceding or following cohorts. But if this decrease in opportunities regularly recurs, the question arises if there is not an underlying socially produced mechanism whose effects can be investigated.

Research in this area is only beginning. This essay sketches a cycle theory which attempts to illuminate the recurrence of continual surplus and deficit crises in academic careers in Germany. This study is based on the voluminous empirical material of about 1.5 million data on university history collected and investigated quantitatively by the QUAKRI research project. Since the analysis has not yet been completed, only interim results, summarizing the state of the inquiry at the end of five years, can be presented.⁵

Fluctuation, Intensity and Social Recruitment of Students:

The initial investigation pursued the question of whether or not specific enrollment patterns in different academic disciplines varied in their degree of fluctuation. In order to subject their frequency curves to a strict non-impressionistic analysis, the general trend was isolated from the cycles to be studied.⁶ On the basis of such a general

3. U. Herrmann, "Historische Pädagogik," 14. Beiheft of the *Zeitschrift für Pädagogik* (1977), 13-128.

4. R. Schairer, *Die Akademische Berufsnot* (Jena, 1932).

5. Since 1975 at the Pädagogisches Seminar of the Göttingen University, a research group (under the direction of Hans-Georg Herrlitz and Hartmut Titze) has been analyzing oversupply crises in academic careers (especially in secondary school teaching) in 19th and 20th century Germany. From 1977 on these investigations have been supported by the Deutsche Forschungsgemeinschaft within the comprehensive QUAKRI project (i. e., *Qualifikationskrisen und Strukturwandel des Bildungswesens*), directed by Detlev K. Müller. Its voluminous statistical materials will be published as a data handbook on German educational history. Those quantitative sources which cannot be included for reasons of space will be printed there.

6. The problem of what methods to use in determining trends cannot be discussed in this essay. To ensure that the results of the analysis are not statistical artifacts, different procedures of

trend, a time series of relative cycle values was calculated for student enrollments in specific faculties. These values indicate to what extent a cyclical increase goes beyond or falls below the "normal" level of the general pattern. The values oscillating around 100 thus present a graphic picture of the wave-like enrollment patterns. The differences in the cycle values from one half-wave to another were related to the time in which the increases and decreases occurred. The different intensities of the cyclical fluctuations thus determined provide a useful scale with which to measure the variations of student enrollment.⁷

This analysis of the degree of fluctuation produced the following results. (1) Enrollments in the faculties of Protestant theology were by far the most subject to cyclical fluctuations. (2) The structure of the faculties of Catholic theology deviated considerably from that of all other faculties, which leads one to assume that recruitment patterns of Catholic clergymen depended on rather atypical circumstances. Although enrollment varied considerably at all German universities, it fluctuated over stretches of time that are noticeably longer than for other faculties. (3) Cyclical fluctuations were considerably weaker for the faculties of law, both under relatively stable enrollment conditions (until 1860) and in conditions of growth (1860–1930). (4) The faculties of medicine were subject to only modest fluctuations until the great expansion after the middle of the 1870s. At that point, the effects increased in intensity. (5) A similar sequence characterized the faculties of philosophy: During the 19th century, especially the last third, cyclical variations grew in intensity and approached the pattern of the faculties of Protestant theology.

These results suggest the hypothesis that differences in enrollment fluctuations bear a close functional relationship to the social recruitment base of a career. This thesis is based on the following considerations: The social drive toward an academic career depends on class-specific normative prerequisites and on resources which are unequally distributed across strata. Based on both conditions, the level of demand for academic training is more widespread and more stable among the higher classes than in the middle and lower groups. The more an academic career is open in its recruitment base towards below and reaches into strata which are "weaker" in resources and normative conditions, the more intense is the effect of enrollment fluctuations. This hypothesis suggests the expectation that the cyclical dependence of

trend determination (sliding averages, linear and polynomial regression curves, exponential trends) were tested. These led in general to results similar to those detailed below.

7. Absolute numbers for the faculties of Prussian universities, on which this analysis is based, are roughly comparable, so that they can be converted to cycle values with little distortion. Differences in fluctuation across time were determined in the following ways: If one divides the fluctuation differences between the nadir and the zenith by the duration of the upswing in semesters, one obtains a quotient which measures the intensity of the upswing. All cyclical fluctuations were ranked according to the degree of their intensity. Secondly, in order to eliminate the peculiarities of individual upswings and declines, an average intensity factor was calculated (as arithmetic mean of all individual intensity factors). Thirdly, all absolute values were added together into a total fluctuation value. This was divided by the sum of all semesters in which growth and decline occurred, resulting in a global intensity factor. The results of these various procedures generally coincided.

student enrollments would correspond to its recruitment bases. Relatively "open" student fields should fluctuate more strongly than relatively exclusive areas.⁸

The fluctuation intensity of enrollments varies according to a series of indicators which lead like probes into specific parts of a complex functional nexus:

If the sons of non-university trained officials and teachers, of farmers, workers, servants and unskilled workers are included in the category of strata remote from education, the proportion of these students in the whole produces a hierarchy of faculties which corresponds, as in the hypothesis, to the cyclical dependence of faculties in the Empire.⁹ The widely fluctuating faculties of theology and philosophy were considerably more "open" than the less fluctuating faculties of medicine and law. If students from petit bourgeois backgrounds (artisans and small shopkeepers), whom Prussian statistics separate only after 1905, are included as well, this structural relationship does not change.

If faculties are classified according to their quota of academics (i. e., the proportion of students whose fathers had studied at the university), an analogous hierarchy of faculties emerges. With 38.02% of educated fathers among all students in the Empire in the winter semester of 1886-87 the law faculties were clearly at the top. At the bottom were the philosophers with 22.17% and the Catholic theologians with only 3.75%, which once again underlines the special position of the latter. Two factors determine the middle position shared by the more open faculty of Protestant theology and the more exclusive medical faculty: Whereas the high degree of self-recruitment raised the quota of academics among Protestant clergy, the high proportion of students from the propertied bourgeoisie lowered the academic quota for medical doctors.

If one tests this indicator for individual institutions, a social hierarchy of universities can be established, led by the exclusive universities of Marburg (34.20%) and Göttingen (31.36%). The "poor" and "open" universities of Königsberg (20.25%) and Breslau (18.89%) were clearly at the bottom. The as yet incomplete university in Münster held a completely atypical position (quota of academics 8.19%) because of its open faculties (Catholic theology and philosophy).

If one classifies specific faculties on the level of individual institutions according to their quota of academics, a complex hierarchical structure emerges, ranging from the most exclusive faculties at the most exclusive institutions, to the most open faculties at the most open institutions. The law faculty at Göttingen, with 51.80%, held the

8. For the source of this hypothesis, see H.-G. Herrlitz and H. Titze, "Überfüllung als bildungspolitische Strategie. Zur administrativen Steuerung der Lehrerarbeitslosigkeit in Preußen 1870-1914," *Die Deutsche Schule*, 68 (1976), 363 ff. Because of the great institutional differences, the present analysis was based on the data set for Prussian students (1886/7-1911/12).

9. The social classification of students according to father's profession creates considerable definitional difficulties. The Göttingen group followed a pragmatic concept which largely concurs with the scheme developed by K. H. Jarausch, "Frequenz und Struktur. Zur Sozialgeschichte der Studenten im Kaiserreich," *Bildungspolitik in Preußen zur Zeit des Kaiserreichs*, P. Baumgart, ed. (Stuttgart, 1980), 135. It is impossible to separate the sons of peasants from those of estate owners since the Prussian Statistics apparently manipulated primary data in this area.

top position, while the faculty of Catholic theology in Breslau, with 0.95%, brought up the rear. Selection processes of faculties and universities apparently potentiated each other. For example, the highest ranking medical faculties which overlapped with the law faculties were those at the highest ranking universities of Göttingen and Marburg. The philosophical faculty which ranked highest was that of the exclusive university of Marburg. An astounding logic of system building and distribution of "social opportunities" was at work here (Table 1). Therefore, the effects of the functional relationship between "social openness" and cyclical dependence were most apparent where the selection processes, which resulted from the hierarchical structure of faculties and universities, were cumulative (such as in theology in Königsberg and Breslau between 1830 and 1912).

The functional connection between enrollment fluctuations and student structure appears yet more complex if one considers the provincial quota, i. e., the proportion of students originating in the province in which the university is located. This indicator reveals the social-structural space from which an individual university draws its students. The "poor" eastern universities had by far the highest provincial quota: More than nine out of ten students at the Königsberg university came from the home province of East and West Prussia (92.3%).¹⁰ Seven out of ten students in Breslau originated in Silesia. By contrast, the provincial quotas of the more exclusive Prussian universities were clearly lower: Göttingen 67.6%, Marburg 45.5%. Because of its supra-regional significance, the mass university in the capital Berlin had the fewest provincial students (31.4%).

A further indicator is the quota of those students in each faculty who changed universities. Since moving from one university to another naturally involved considerable expenses, differential inter-university mobility allows one to speculate about the extent to which students did or did not have additional resources at their disposal. This indicator generally confirms the hierarchy of faculties. The quota of transfers was greatest among law students (between 68% and 75% during 1886-1912). Next came medical students (53% to 67%) and Protestant theologians (54% to 64%) who ranked remarkably high according to this indicator. Changes of university were fewer for students in the philosophical faculty (40% until 1900, then increasing as in other faculties from 43% to just under 58%). Catholic theologians deviated noticeably from the general pattern: only every fifth to eighth student changed universities (13% to 20%).¹¹

All of the specific indicators employed in the analysis point in the same direction and support the general hypothesis: A functional relationship existed between enrollment fluctuations in different faculties or fields and their recruitment base; relatively open careers were more affected by oversupply and deficit crises than relatively exclusive ones.

10. Even during the growth phase in the Empire "the character of the student body ... remained closely tied to the land." G. Selle, *Geschichte der Albertus-Universität zu Königsberg in Preußen* (Königsberg, 1944), 325.

11. The hierarchy of faculties becomes even more pronounced in the quota of those who transfer two or more times.

Table 1: A Social Typology of Universities and Faculties
(Prussia 1887/88)

Faculties		Universities	"Open" KÖNIGSBERG	Hierarchy of Universities BRESLAU . . . GÖTTINGEN	"Closed" MARBURG
"Open" Hierarchy of Faculties "Exclusive"		Quota of academics at all Prussian faculties	20.25	18.89	31.36
					34.20
	Cath. Theol.	3.75	-	0.95	-
	Phil. Fac.	22.17	11.95	18.35	24.79
	Prot. Theol.	26.12	17.06	18.96	25.57
	Medicine	23.27	22.97	19.95	34.88
	Law	38.02	34.66	32.72	51.80
Provincial Quota of Universities			92.3	79.9	67.6
					45.5

Selection Processes during Oversupply and Deficit Crises:

An analysis of the cyclical rise and fall of different student streams suggests the following reconstruction of the genesis of the general oversupply crisis for the years 1880-1900 (Table 2):

From the late 1870s to the early 1880s law careers appeared "overcrowded." The proportion of gymnasium graduates which decided to study law greatly decreased (by almost 40%) after 1876. A considerable part of the "deflected" beginners, which might have studied law under more favorable circumstances, turned to the medical faculty, which grew after 1876. A presumably smaller number added to increasing enrollments in the philosophical and theological faculties.

The philosophical faculty which had been expanding since the beginning of the 1870s because of a large teacher deficit was the second large professional faculty to reverse itself. In 1882-3 signs of an overcrowding in secondary teaching multiplied. Enrollments decreased among first-semester students preparing for teaching careers especially sharply in the early 1880s. Whereas every fourth gymnasium graduate turned to the philosophical faculty at the end of the 1870s, by the end of the 1880s only every tenth did so. Those gymnasium graduates increasingly frightened away from teaching careers due to official warnings in the schools turned to the two other faculties which prepared for careers not yet affected by the "oversupply", if they did not abandon university study altogether. Professional prospects in theology seemed especially promising because of the continuing deficit of clergy in both confessions. Therefore the share of gymnasium graduates in the theological faculties increased rapidly (from 25.8% in 1882-3 to 34.2% in 1887-8). The influx into medicine also grew until 1885-6, even if more modestly.

About four years later the two remaining major academic careers also appeared closed and the faculties of medicine and Protestant theology entered a phase of decline. Except for the Catholic clergy, atypical because of its special recruitment pattern, all four academic professions for which university faculties prepared seemed "overcrowded" at the end of the 1880s. In public perception and discussion, as well as in administrative measures, the years 1889 and 1890 marked the height of the oversupply crisis in the Wilhelmian era.

This analytical reconstruction based on enrollment cycles of faculties essentially corresponds to the actual oversupply situation.¹² There is something to the thesis that student enrollments in specific fields anticipated the reversal of professional prospects by several years. Even before the overcrowding of a career actually became apparent, the influx of beginning students decreased. First-semester enrollments offer sensitive indicators in so far as they registered "seismographically" the approach of oversupply waves.

The selection processes which underpin the cyclical enrollment fluctuations are interesting. A whole series of reasons indicates that in unfavorable objective conditions, such as during overcrowding, candidates from middle and lower classes abandoned their academic aspirations and became discouraged more readily than those from the upper classes. A second less obvious observation, which relates to a hidden,

12. See the contemporary literature cited in D. K. Müller, *Sozialstruktur und Schulsystem* (Göttingen, 1977), 274 ff.

Table 2: Long Cycles of Student Enrollments at Prussian Universities

Faculty/ University Number		Period		Downswing		Duration of the cycles in:			
		Upswing				Semesters	Years		
		2	3	4		5	6	7	8
Prot. Theol.	1	1772	- 1782	- 1805/06		20	47	67	33.5
Göttingen	2	1805/06	- 1828/29	- 1852		46	47	93	46.5
	3	1852	- 1860	- 1876/77		16	33	49	24.5
	4	1876/77	- 1888	- 1902/03		23	29	52	26
	5	1902/03	- 1919	- 1925/26		33	13	46	23
Prot. Theol.									
All	3	1852/53	- 1861/62	- 1876/77		18	30	48	24
Prussian	4	1876/77	- 1887	- 1905/06		21	37	58	29
Universities	5	1905/06	- 1913/14	- 1925		16	23	39	19.5
Cath. Theol.									
All		1839	- 1859/60	- 1880/81		41	42	83	41.5
Prussian		1880/81	- 1919	- 1925/26		77	13	90	45
Universities									
Law	3	1843	- 1851/52	- 1860		17	17	34	17
All	4	1860	- 1878/79	- 1886		37	15	52	26
Prussian	5	1886	- 1906/07	- 1915		41	17	58	29
Universities									
Medicine		1848	- 1871/72	- 1875/76		47	8	55	27.5
All		1875/76	- 1887	- 1904/05		23	35	58	29
Prussian		1904/05	- 1919	- 1925		29	12	41	20.5
Universities									
Phil. Fac./	2	1835	- 1845/46	- 1854		21	17	38	19
Philology	3	1854	- 1869/70	- 1873		31	7	38	19
All	4	1873	- 1882/83	- 1893		19	21	40	20
Prussian	5	1893	- 1912/13	- 1924		39	24	63	31.5
Universities									

rarely described mechanism, complements the first: When conditions were favorable, as during academic demand, candidates from middle and lower classes would try to seize their opportunities by aiming in greater numbers for those professions which offered especially promising prospects and a relatively quick remuneration. Both observations lead to the hypothesis of the double selectivity of the "academic job market."

During oversupply crises, a negative selection was at work which was stronger, the lower the social origin of the student (deterrent effect). During contraction phases of enrollments, the proportion of students from the upper classes increased (displacement effect). During deficit crises, a positive selection process came into play, whose effect was stronger, the lower the social origin of the gymnasium graduate. In expansion phases, the proportion of students from lower classes increased (attraction effect).

If the hypothesis of double selectivity is correct, the social recruitment of academic careers must adjust "upwards" or "downwards" in the short run while remaining fairly stable in its prevailing characteristics in the long run. Cyclical changes in the recruitment base of Prussian students at Prussian universities were examined between 1886-7 and 1911-2. All faculties showed specific deterrent and displacement processes during oversupply phases and attraction effects during deficit phases.

During overcrowding in the Protestant clergy, the proportion of sons of officials of all categories (including sons of pastors) grew considerably (from 55% to 72%) whereas the sons of farmers and small businessmen, especially artisans and small shopkeepers, were "displaced" (contracting from 39% to 20%).

The number of graduates destined for the priesthood, the only major academic career that was not overcrowded in the critical decades, quadrupled in the 1880s and 1890s. This influx was composed above all of sons of farmers, artisans, small merchants, skilled and unskilled workers. Whereas the sons of the proletariat were a rare exception among students in the two exclusive faculties (most semesters far less than 1%) and in the two open faculties (in Protestant theology and philosophy, rising to about 1-2%), in Catholic theology their proportion climbed from 2-4% at the end of the 1880s to not less than 12% before the First World War.

During the downcycle of law enrollment, the sons of higher state officials reached their highest proportion among law students (over 26%). During the expansion before World War One their proportion decreased to under 19%.

Worsening prospects in medicine largely benefitted the sons of free professionals: they almost doubled their numbers (from 7% to 13%) among the decreasing numbers of medical graduates.

At the height of the oversupply crisis in secondary teaching sons of higher officials made up almost 20% of the first major field of study in the philosophical faculty (ancient and modern philology and history). In the deficit phase preceding World War One their proportion was halved to 10 percent. Sons of middle and lower officials showed an opposite tendency; their proportion declined to under 25% during the oversupply phase but climbed to 40% during the deficit phase before World War One. Trends in the mathematical-natural science field were similar, occasionally even more pronounced.

This empirical material therefore supports the above deterrent, displacement and attraction hypothesis. Since the recurrent worsening of professional prospects only

affected all careers simultaneously during general oversupply crises, the narrowing of opportunities in one area usually coincided with "still favorable" prospects or once again broadening opportunities in other areas. The diverse deterrent, displacement and attraction mechanisms which kept the system of academic reproduction in a state of equilibrium must therefore be considered as partial aspects of a single functional process.

Whereas the preceding examination of cyclical recruitment changes was based on an inflow analysis (where do the students of the different faculties come from?) the following outflow analysis reverses the perspective: Where do the students from different social groups go?

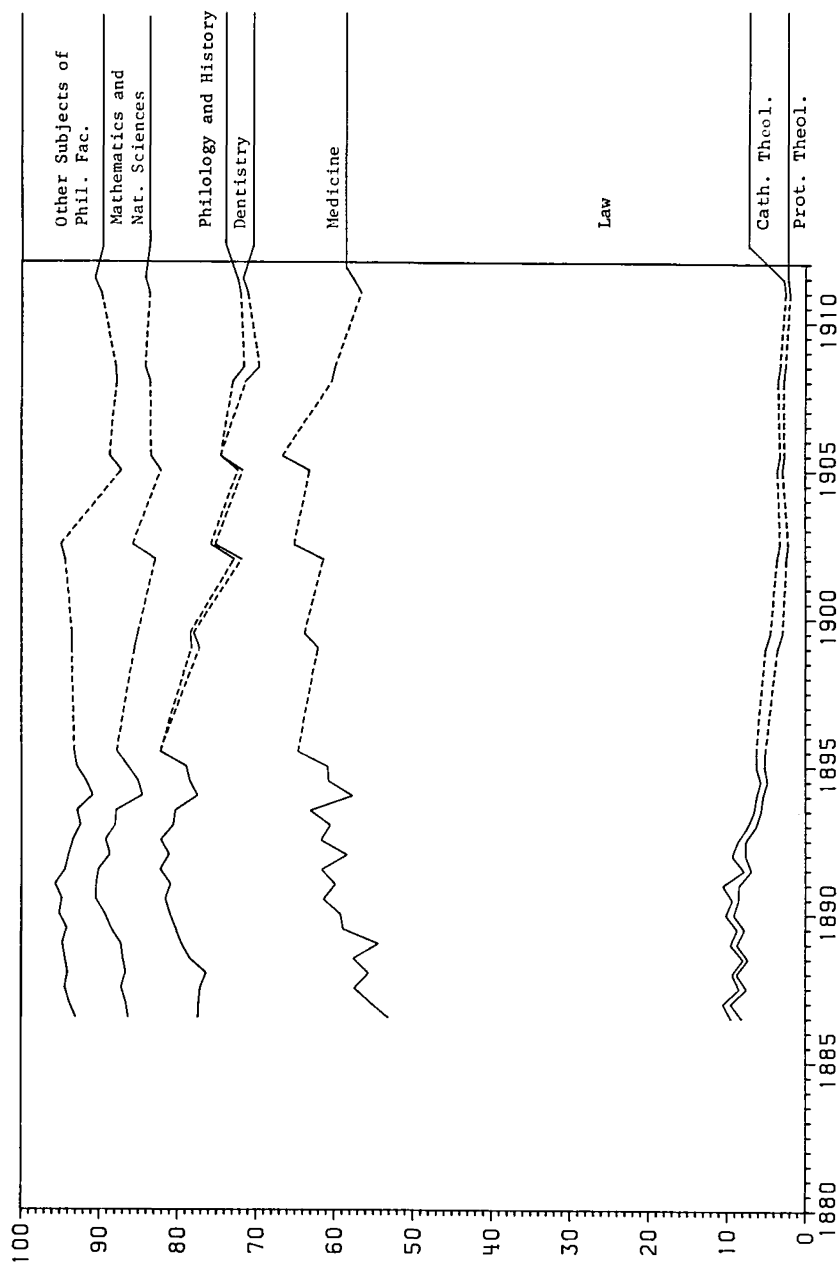
If it is true that beginning students selected their subject of study according to relative perceptions of career prospects depending on their social origins, this pattern should hold for students of all semesters from one stratum. Career preferences of one social group can be depicted as a profile of fields which illustrates the proportion of which students choose different faculties. If study choices of one social group were relatively independent of changes of supply or demand in different careers, a relatively stable field profile should emerge for this social group. If students from a certain stratum often chose their field of study according to changing professional prospects, an unstable field profile should result.

A social analysis of study choices impressively confirms the hypothesis that students from the middle and lower strata responded more to professional oversupply and deficit cycles than did students from the upper classes. Sons of higher officials and lawyers showed quite a stable profile of study preferences (Graph 1). Between two-thirds and three-fourths chose legal and medical studies from 1886 to 1912. A certain interdependence between law and medicine was apparent within the relative stability of these exclusive careers. Not influenced by changing professional prospects, enrollments in teacher preparatory courses maintained a lower but stable level. Spiritual callings in the Protestant and Catholic church appeared less and less attractive; the two theological faculties declined into insignificance as choices by World War One. Study preferences of sons of officers and estate owners had a similarly stable profile (with law even more dominant). Sons of doctors tended to prefer the two exclusive careers, with a naturally large proportion in the medical faculty because of self-recruitment.

Study choices of sons of clergymen and secondary school teachers were more influenced by changing career prospects. With the worsening of opportunities for Protestant clergymen (and a more favorable outlook for alternate careers) the traditionally high quota of self-recruitment of pastors decreased more drastically than in any other career (from 60.9% to 30.7%). The crucial development was the shift in relationship between the Protestant theological and the philosophical faculties. At the height of the overcrowding crisis in secondary teaching around 1890 only every tenth pastor's son was enrolled in the philosophical faculty; during the phase of favorable prospects and great expansion among secondary teachers around 1908, there were proportionately three times as many. When signs of renewed overcrowding in secondary teaching appeared shortly before the First World War, their proportion in the philosophical faculty again declined slightly.

The profile of study choices of the sons of secondary school teachers was similarly influenced by cycles. The comparatively low level of self-recruitment, fluctuating be-

*Graph 1: Study Profile of Sons of Higher Officials and Lawyers
(Prussia 1886-1912)*



tween 25% and 43%, corresponded closely to cyclical oversupply and deficit phases. Aside from this professional orientation, the son's study profile reflected the father's professional fate; a very high proportion aimed for a legal career. For decades during the Empire the fathers struggled for status equality with jurists, finally achieving financial parity with the lowest level of judges in 1909.¹³ Around the turn of the century, a few years after renewed discrimination against teachers in the salary reform of 1897, sons of secondary school teachers chose law even more often than their father's career.

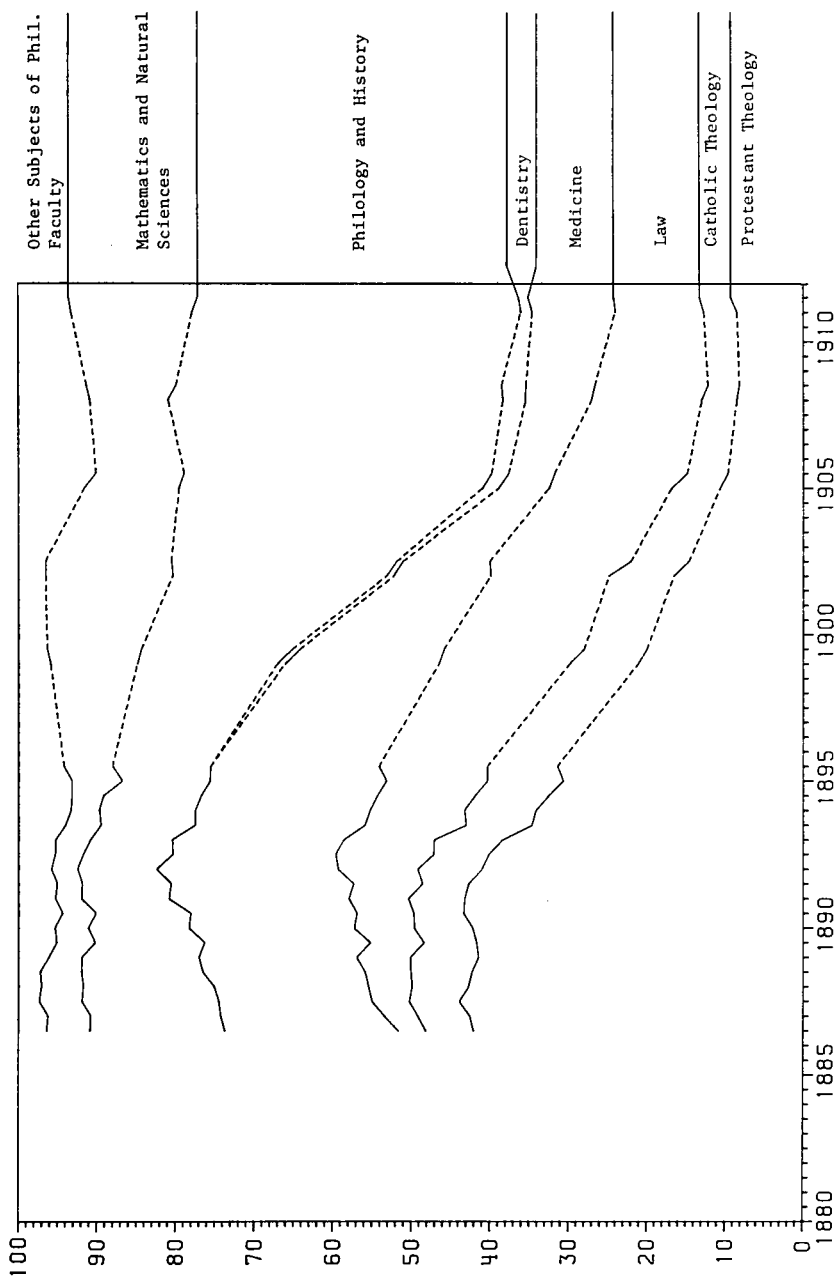
Changing professional prospects exerted their strongest influence on the study preferences of the sons of the new middle class of the growing public sector. For the majority of these students from middle and lower official and elementary school teacher families university study entailed considerable financial sacrifice and depended upon rapid employment after the examination. It is not surprising that a relatively strong concentration in the open faculties as well as a cyclical demand orientation characterized the profile of this group. While only 13% of sons of elementary school teachers were enrolled in the two major teacher preparatory courses at the height of the oversupply crisis in philosophy, this proportion rose rapidly with the improvement in career prospects and reached no less than 57% in 1911–12. As a countertrend, the proportion of those entering the overcrowded career of Protestant theology shrank from over 40% to under 10% (Graph 2). This unstable profile of study preferences of elementary school teachers' sons resembled the pattern of middle and lower officials, with two characteristic differences: Their proportions were lower in both theological faculties, yet higher in law, while the cyclical dependence of their preferences of fields of study was somewhat less pronounced.

If the double selectivity hypothesis is correct, its social mechanisms should manifest themselves in changes of study field. In decline phases the proportion of those students who abandoned their originally chosen field and turned to another with better career prospects increased (deterrent effect). Those who changed fields of study oriented themselves according to perceived professional prospects and turned to those faculties or subjects which promised especially favorable opportunities (attraction effect).

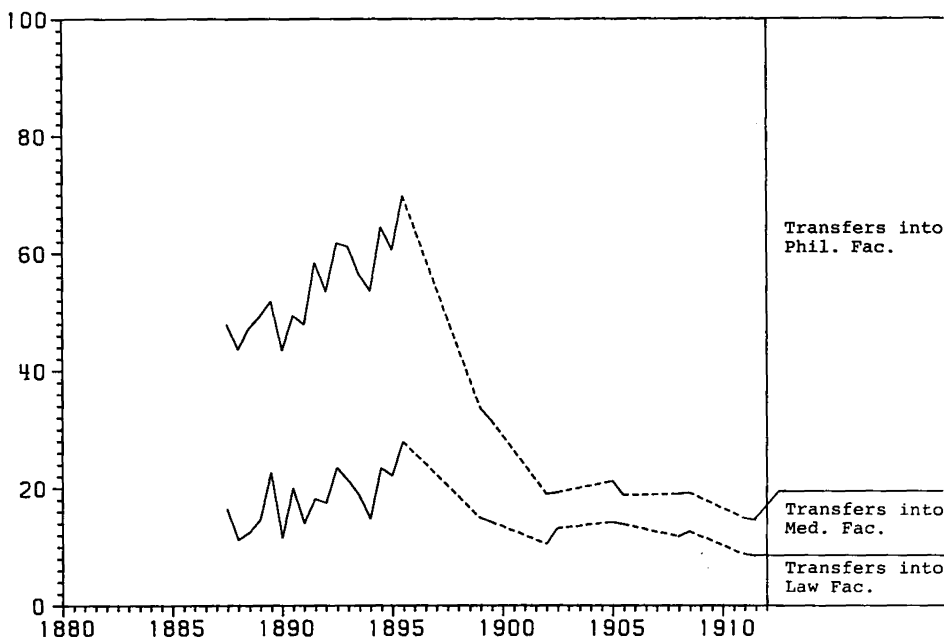
Because of the available data, these hypotheses can be tested only for Prussian students in general, not according to their social origin. The sources limit verification to the two faculties that cyclically declined during the period investigated: Protestant theology (1887–1905/6) and medicine (1887–1904/5). The deterrent hypothesis was confirmed in both instances. The proportion of those who left the faculty of Protestant theology increased from 7.42% in the winter semester 1887–8 to 16.14% in the winter semester 1899–1900. The proportion of students departing from the medical faculty also rose considerably and even tripled in the decline phase from 2.86% to 8.72%. As a complement to the growing number of those who removed themselves from the two overcrowded careers, the number of those who left the faculty of philosophy in the deficit phase decreased accordingly from 11.45% in 1893 to 5.54% in 1911.

13. H. Titze, "Die soziale und geistige Umbildung des preußischen Oberlehrerstandes von 1870 bis 1914," *Zeitschrift für Pädagogik, Beiheft* 14 (1977), 107–128.

*Graph 2: Study Profile of Sons of Non-Academic Teachers
(Prussia 1886-1912)*



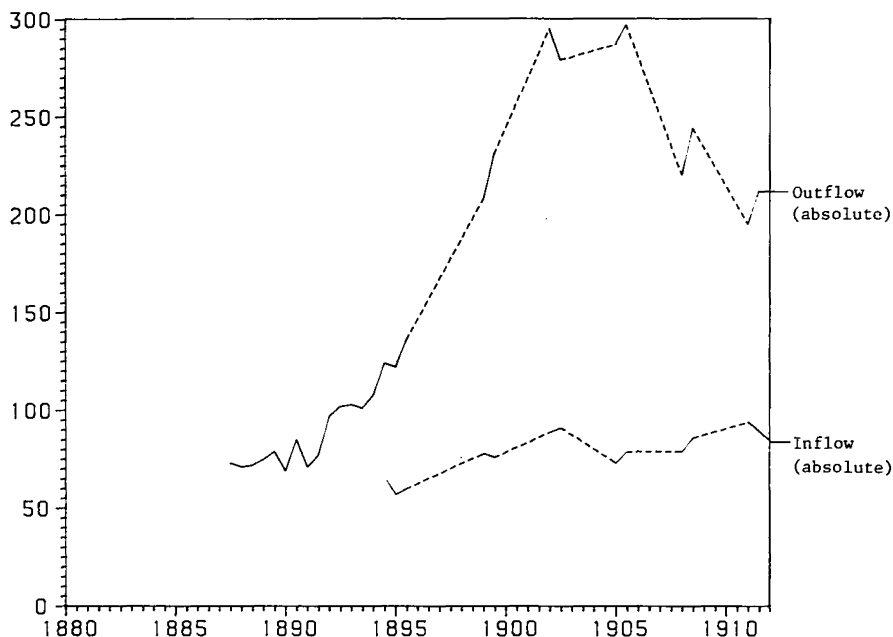
Graph 3: Profile of Transfers out of Catholic Theology Faculties at Prussian Universities



The attraction hypothesis of deficit phases was confirmed even more convincingly. A central, overriding tendency determined the changes of major fields: the growing stream of those who left other faculties in order to enter philosophy. The deficit of secondary school teachers, repeatedly predicted in the scholarly world from the mid-1890s, created an enormous attraction, not only among beginning students but also among those who changed fields of study. This effect can be clearly seen in the structure of the profile of those who left their original faculties. The proportion of transfers into philosophy increased in Protestant theology from 34.21% in 1892 to 84.10% in 1905, in Catholic theology from 34.49% in 1895 to 80.83% in 1902, in law from 23.75% in 1888 to 67.77% in 1905, and in medicine from 32.77% in 1888 to 66.07% in 1905.¹⁴

14. R. Büniger, "Der Bedarf Preußens an Abiturienten," *Preußische Jahrbücher*, 73 (1893), 52-84; A. Schoenflies, "Die Überfüllung im höheren Lehrfach. Bemerkungen zu der Lexis'schen Denkschrift," *Preußische Jahrbücher*, 69 (1892), 192-206; E. Huckert, "Zur Statistik über den Bedarf an Lehrkräften an den höheren Schulen Preußens," *Blätter für höheres Schulwesen*, 13 (1896), 86-88, 104-105.

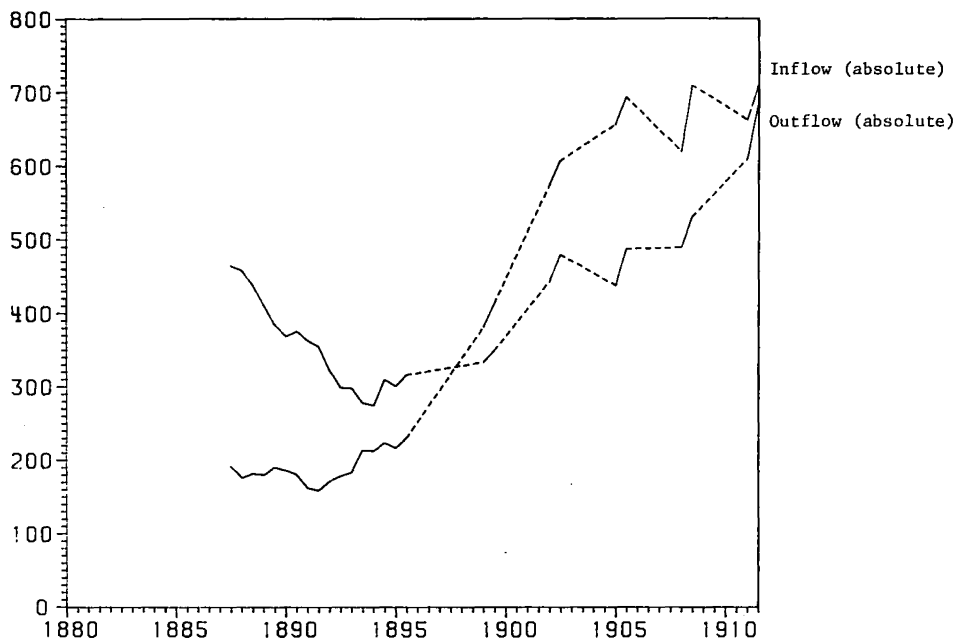
Graph 4: Profile of Inflow and Outflow at Catholic Theology Faculties



Additional specific results also fit the framework of the hypothesis. The proportion of those who left the theological faculties was considerably higher than those who transferred from the exclusive faculties of law and medicine. Therefore both theological faculties reflected the change of teaching prospects more graphically. At the end of the 1880s and the beginning of the 1890s, the transfer quota decreased due to an intensification of the oversupply crisis in secondary teaching, only to increase again after the first predictions of a future deficit (Graph 3). The Catholic theological profile reveals the extent to which the pull of teacher demand created a loss since more students left than entered (Graph 4). By 1900 the Prussian priesthood deficit of 1100 vacant posts had disappeared, and a considerable number of those theological students switched to the more attractive “deficit career” of secondary school teaching. The change in teaching prospects is also evident in the profile of the philosophical faculty. Because of the long waiting periods for candidates for teaching positions, the philosophical faculties exhibited a large transfer loss during the overcrowding phase in teaching. The subsequent teacher deficit reversed the pattern and they registered a gain in transfers until the renewed oversupply warnings shortly before the First

World War (Graph 5).¹⁵ The relatively high quota of changers (those who enter as well as those who leave) in the philosophical faculty confirmed the wellknown phenomenon that many of the candidates were motivated by other factors and saw school teaching only as a "poor second" career.

Graph 5: Profile of Inflow and Outflow at Philosophical Faculties



The analysis of those who change fields of study complements and confirms the results of the examination of the different recruitment bases of the faculties. In comparison to the others, transfers between the two exclusive faculties (law and medicine) were relatively frequent. Both exhibited a greater "social distance" from the theological faculties, whereas the high level of exchange of the latter with the philosophical faculty once again indicated the "social proximity" of the two open faculties. Obviously, educational prerequisites, such as knowledge of classical languages,

15. W. Lexis, "Bedarf und Angebot in den gelehrten Berufszweigen," *Hochschul-Nachrichten*, 15 (1905), 6; E. Huckert, "Steht ein Überfluß an Philologen bevor?" *Blätter für höheres Schulwesen*, 27 (1910), 278-281.

also played a role. The behavior of transfers into and out of the medical faculties also reinforced these results. During the overcrowding of physicians the number of those who changed into the medical faculty declined steadily until 1905. While theology students transferred only rarely during this critical phase, law students still entered more frequently despite unfavorable prospects in the medical profession.

Growth Dynamics in Academic Careers:

The rapid expansion of academic careers in the Empire raises the question of long-range growth conditions in the tertiary educational sector.¹⁶ The initial analysis of long-term student enrollments for old Prussian universities since 1820 and for some individual institutions even earlier (Göttingen after 1767), suggests new hypotheses which must be refined through further research.

The largest academic professions grew remarkably little in the middle third of the century (Table 3). The growth pause of the prerevolutionary period manifested itself in the long-term trend of the further education of gymnasium graduates. Their numbers grew to over 15,200 in the 1820s. This boom was the prerequisite for the pre-1848 overcrowding of academic careers. As in the preceding excess in the last decades of the 18th century, admission prerequisites for academic studies and careers in higher civil and clerical service were restricted socially. As a consequence of this restrictive policy and of the overcrowding itself, the total number of secondary school graduates entitled to study decreased in the 1830s to 13,500 and in the 1840s to under 12,000. After these two decades of contraction and restriction, the level of the 1820s was reached and exceeded once again in the 1850s.¹⁷

The focus of the recent debate on the spectacular oversupply crisis of the 1880s and 1890s has obscured an equally remarkable phenomenon: From the beginning of the 1870s, academic careers faced partly serious shortages. There is much evidence that the general deficit was a delayed effect of the restrictive entitlement policy maintained since the 1830s, which had kept the influx into the professions down "corresponding to need." Bureaucratic regulation in the prerevolutionary period was compatible with restrictive planning and control of "educated manpower demands." Long-term, unintended effects caught up with this policy in the 1860s and 1870s.

16. Demographic influences certainly played no role during the Empire. By comparison, they were of great importance in the enrollment collapse in the Third Reich. Declining birth rates from 1915 on (which made themselves felt among graduates and students after the mid-1930s), along with the deterrent effects of the oversupply crisis and extreme political measures must be taken into account in order to avoid a false interpretation of the dramatic contraction of university attendance under National Socialism.

A small part of the growth in student numbers in the Empire can be attributed to a prolongation of time of study. Since female students played a role only in the last five years before World War One, they have been excluded from this essay. But this new factor contributed to the overcrowding phase of academic professions between the wars.

17. L. Wiese, ed., *Das höhere Schulwesen in Preußen* (Berlin, 1864), 1: 512ff.; H.-G. Herrlitz, *Studium als Standesprivileg* (Frankfurt, 1973); see also Schubert, "Zur Geschichte und Statistik der akademischen Studien und gelehrten Berufe in Preußen seit 1840," *Archiv für Landeskunde der Preussischen Monarchie*, 2 (1856) 188-204.

Table 3: Growth of Academic Professions in Prussia (1815-1930)

Positions for Prot. Clergy			Legal Positions in Government Service		Doctors	Secondary School Teachers			
Year	Old Prussia	New Prussia	Year	Old Prussia	New Prussia	Year	Old Prussia (incl. probationers)	New Prussia (incl. probationers)	New Prussia (only regular appointments)
1815	5,584		1830/35	5,911		1816	976		
1840	5,791		1836/40	5,915		1832	1,263		
1850	5,921		1851	5,897		1846	1,655		
1860	6,187		1855	6,307		1851/52	1,933		
1870	6,448		1860	6,864		1863	2,614		
1880	6,608		1866	7,200		1868	3,127	3,805	
1890		9,343	1875	7,100		1870/71		4,215	3,675
1900		10,071	1881	7,020	8,500	1880/81		5,533	4,960
1910		10,743	1889		9,888	1890/91		6,802	5,617
1918	7,656	10,332	1902		12,560	1900/01		7,126	6,724
1925	7,267	9,890				1910/11		10,500	9,546
1930	7,500	10,232				1913/14		11,189	10,167
						1914		20,632	12,680
						1920		19,917	15,401
						1925		26,485	17,041
						1930		29,579	15,403

Dentists are not included among doctors. Until 1851/2 teachers include only those at gymnasias, after 1863 the "scholarly" teachers at all recognized secondary schools, from 1921 on, also those at girls' schools.

Since the shortages affected almost all careers, they were not the results of a natural, false distribution of students; rather they were the consequence of a general deficit of gymnasium graduates.

In the first half of the 1870s, the number of students in Protestant theological faculties was at least one-third below replacement need, in the second half still one-fourth below. There were lively discussions "about the decline in the study of theology" at numerous church conferences in the 1870s. The situation for priests (aggravated by the *Kulturkampf*) was so precarious in the second half of the 1870s that Prussian students of Catholic theology did not make up even one-fourth of the replacement need. "The number of students is so insufficient" noted J. Conrad "that the clergy will shortly almost become extinct and most posts remain vacant if a change for the better does not occur soon."¹⁸

Between 1866 and 1875 legal positions also showed a considerable shortage. In comparison to the clergy, the deficit was less apparent since law could draw upon the "stock" of employable candidates who had completed their training in the first half of the 1860s. Those who did not listen to the warnings of the Ministries of Education and Justice in 1857-8 and were not frightened away, could expect favorable career prospects upon completion of their education.

In the revision of his *Denkschrift* W. Lexis gradually moved away from the oversupply thesis for doctors. There could be no talk of a general overcrowding of the medical profession even in 1890 since too few doctors had been trained by the beginning of the 1880s and the deficit had to be made up first. In 1884 Conrad concluded from his investigation of medical demand that there was more reason to complain of a lack of doctors in the present than in the pre-revolutionary period.¹⁹

The shortage of teachers in secondary schools was especially serious in the 1870s. Until 1881 the demand could only be filled through the employment of candidates who had not yet passed their examination, without even requiring official permission from the ministry. Because of numerous teaching vacancies, the examination regulation of December 12, 1866 opened the higher grades of secondary schools even to those who held a third degree diploma, i. e., were qualified only for the lower forms of the gymnasium. Seen in this context, the opening of the teaching career to graduates of the *Realgymnasium* was less a concession to bourgeois demand for modern education than a result of pressures to compensate for the deficit of gymnasium graduates.

In the political climate of the oversupply hysteria of the 1880s and 1890s it was naturally difficult for the few contemporaries not influenced by self-interest to make their sober analyses heard. Independent experts such as Huckert and Bünger, who critically examined the succession of oversupply and deficit, were an exception. They were faced with hostility on all sides because of "impairment of professional interests." Given the social explosiveness of the problem it is not surprising that the defi-

18. Conrad, *Das Universitätsstudium*, 77; Schlosser, *Abnahme der Theologie*; L. Ernesti, *Über die Abnahme der Theologie-Studierenden* (Stuttgart, 1875); Conrad, *Das Universitätsstudium*, 96; W. Lexis, *Denkschrift über die dem Bedarf Preußens entsprechende Normalzahl der Studirenden der verschiedenen Fakultäten* (Berlin, 1891), 21.

19. H. Hälschner, *Das juristische Studium in Preußen* (Bonn, 1859); Lexis, *Denkschrift*; Hoffmann, *Sammlung*, 210 ff.; Conrad, *Das Universitätsstudium*, 126.

cit was far less frequently discussed in public than the supposed or actual oversupply.²⁰

The shortages of academics aggravated by a decline in willingness to study between 1861 and 1874 probably related to increasing economic prosperity. Insufficient numbers of gymnasium graduates and a deficit of professionals led to pressure for modernization of secondary schools and universities in the 1860s and 1870s. Expansion of the educational system itself became the most pressing problem. The enormous broadening of educational opportunities through expanding existing secondary schools and establishing new ones can be seen as a response to this problem. The growth of the philosophical faculties from 24.12% to 46.72% of the student body between 1854 and 1880 further confirms the internal growth of the educational system (in 1880 41,84% of all students were enrolled in fields leading to teaching careers, Graph 6).

In the expansion phase, the educational system itself absorbed the majority of its graduates in order to meet its own needs for new teachers. Only after the growth of this lead sector could the other professions enter into rapid increases as well. This functional relationship renders the temporal sequence of growth waves in various academic careers analytically transparent. The expansion of secondary teaching directly preceded the increases in the major traditional careers (lawyers, doctors, to a lesser extent clergymen) which occurred mostly in the 1890s. More than twice as many exams for secondary teaching were passed between 1860 and 1869 (*pro facultate docendi*) than in the preceding decade: 2,240 compared to 1,066. There was a further rise of 77% in the 1870s (3,967 examinations 1870–1879). The growth in teacher examinations (Graph 7) led to a rapid increase in regular teaching personnel in secondary schools in the 1870s. The expansion of the educational system itself was also reflected in the growth of teaching staff at universities.

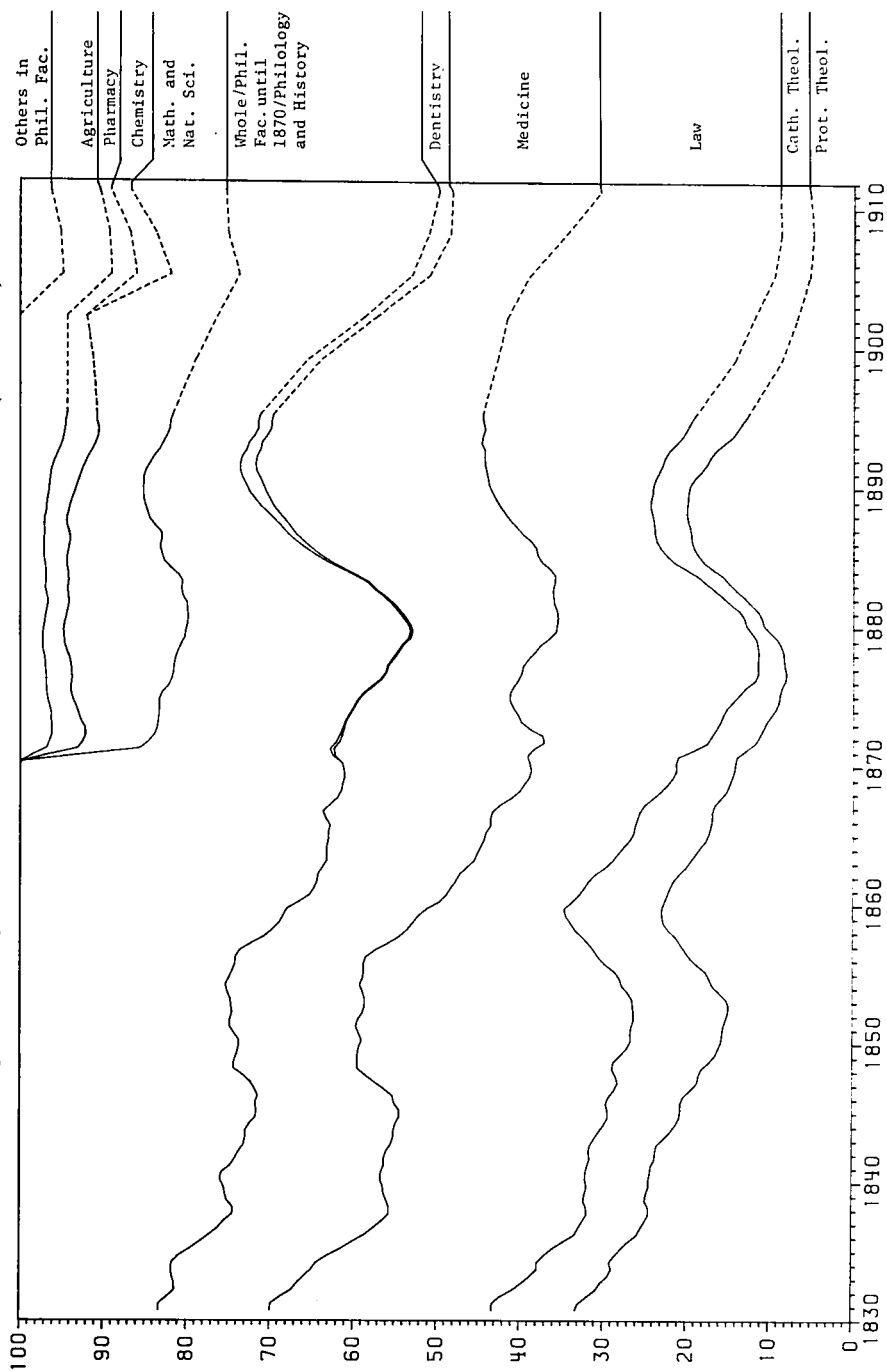
A deficit of professionals together with favorable economic and political conditions for the rapid expansion of secondary education were the most important prerequisites for the extraordinary educational growth until the early 1880s. From the mid-1870s this expansion was reinforced by the "great depression" in the economy. Given business uncertainty, higher civil service appointments became especially attractive and the deficits in this area were eliminated by the early 1880s. Shortages in the free profession of medicine and in the Protestant clergy were overcome at the end of the 1880s. These careers were "overcrowded" only in the 1890s.²¹

With the expansion of the educational system itself, the "natural" recurrence of academic overcrowding appeared on a new level, i. e., under growth conditions. This novel, complex and scarcely controllable growth increasingly disturbed the Prussian bureaucracy, especially at a time when the working class was beginning to organize. In connection with the reactionary reorientation of all domestic politics, educational policies were also redirected towards a conservative course in the early 1880s. Fur-

20. Decree, June 15, 1881, *Centralblatt für die gesamte Unterrichtsverwaltung*, 1881, 536; Titze, "Soziale und geistige Umbildung," 116ff.; E. Huckert, "Der Mangel an Lehrkräften für die höheren Lehranstalten," *Preußische Jahrbücher*, 130 (1907), 68.

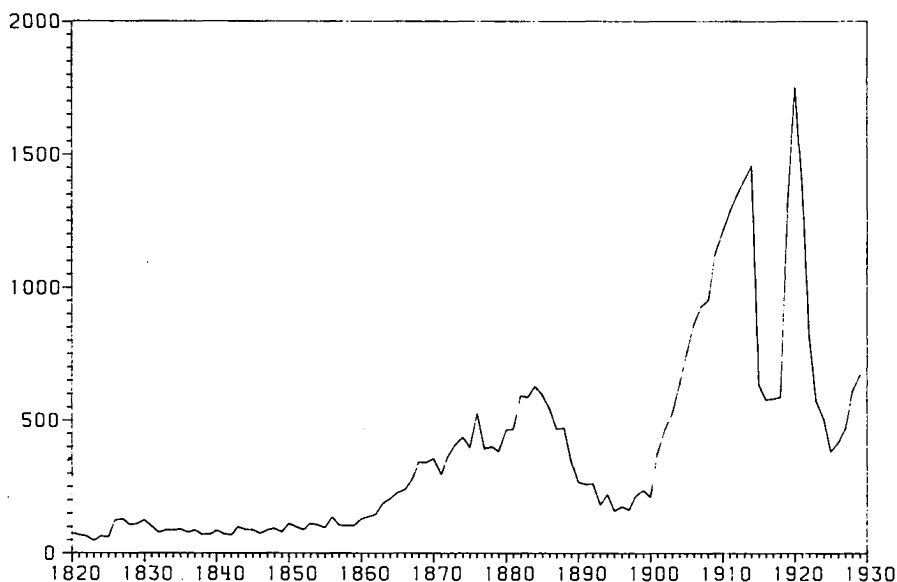
21. Herrlitz/Titze, "Überfüllung als bildungspolitische Strategie," 368; P. Lundgreen, "Das Bildungsverhalten höherer Schüler während der akademischen Überfüllungskrise der 1880er und 1890er Jahre in Preußen," *Zeitschrift für Pädagogik* (1981).

Graph 6: Faculty Profile of Students at All Prussian Universities (1830-1912)



ther expansion was checked on all levels with numerous subsidiary measures out of fear of the reforming consequences of a continued liberalization and social opening of the educational system.

Graph 7: Successful Examinations for Teaching at Prussian Secondary Schools (1820-1930)



Ruthlessly and capitalistically, the leadership (Bismarck, Minister of Culture Gossler) espoused cutting off social access to academic careers towards below. In order to exclude the poorer strata, the costs of education were systematically raised: higher tuition for secondary education, graduated according to level of entitlement (the more opportunities, the higher the cost); increased study costs at universities (fees for matriculation or exmatriculation, auditorium fees, charges for institutes and laboratories in certain fields, higher examination fees etc.); limitation of postponement of lecture fees (whoever wanted to study had to pay for the lectures in cash); decrease of support through scholarships and free lunches; negative pressure on private foundations etc.; and considerable cutting and freezing of all support. For more than a decade, the Minister of Culture was in the grip of an "overcrowding mentality" which hindered the development of sober policies directed toward long-range modernization. The postponement of the structural adaption of secondary schooling

to the requirements of progressive industrialization (parity for modern education) was largely a result of the "overcrowding problem" and its exaggeration by special interest groups.²²

The bureaucracy of the 1880s and 1890s arrogantly overestimated its possibilities of control. The attitude around which it organized its efforts to regain control of education was symptomatic of both the strength and weakness of these Prussian officials. They were modern and up to date in their methods. In their normative ends, however, they were too traditional to be successful in the long run. Their intention of not only channeling growing educational aspirations in loyal directions but of limiting them, could no longer prevail against the powerful demand for wider participation in education following the industrial "take-off." Prussian cultural officials had to learn painfully in the two critical decades that all of secondary education had expanded into a complex system since the 1860s which was increasingly escaping their control. As the developments between 1880 and 1900 demonstrate, the further expansion of the education system could be slowed by political counter-measures but, propelled by industrialization, it could no longer be reversed in principle. Despite efforts to discipline and muzzle young academics, the effects of political measures and controls were relatively limited. This is illustrated by the long-range growth trends of teaching personnel in secondary education. While the increase in regular teaching positions in the twelve years between 1870-71 and 1882-3 amounted to a total of 1,437, during the subsequent twelve years it was cut in half to 702 under the influence of restrictive policies. During this phase of slowed growth, classroom teaching could only be maintained by calling upon the large reservoir of teacher-trainees who bore the full brunt of this restrictive policy as "oversupply victims." But their long-range influence was minimal. The twelve "lean" years were followed by a rapid growth phase until World War One, when the shortages which had been suppressed and dammed up by the preceding restrictive policy were made up. From 1899-1900 to 1913-14 permanent teaching staff rapidly increased again and expanded by no less than 3,724 positions in fourteen years. Growth in secondary education, nourished by profound socio-economic, political and cultural changes, could no longer be permanently throttled by traditional political measures. Neither the authoritative decisions of the Imperial Chancellor Bismarck nor the clever strategies of Prussian ministerial bureaucrats could prevent the completion of the historic breakthrough to a new level of educational expansion in the Empire.²³

Effects of Selection Processes during Career Expansion:

The complex selection mechanism in academic recruitment during the growth phase produced four major results up to World War One.

22. ZStA Merseburg, Rep 92 (Nachlaß Althoff), A I, Nr. 31, 92, 93, 100; Geheimes Zivilkabinett 2.2.1 Nr. 22307-22309; H. Balschun, "Zum schulpolitischen Kampf um die Monopolstellung des humanistischen Gymnasiums in Preußen im letzten Drittel des 19. Jahrhunderts" (diss. Halle, 1964).

23. D. K. Müller, "Qualifikationskrise und Schulreform," *Zeitschrift für Pädagogik*, 14. Beiheft (1977), 17 ff.; Titz, "Soziale und geistige Umbildung," 123 ff.; Herrlitz/Titze, "Überfüllung als bildungspolitische Strategie."

First, the great expansion of academic studies in Prussia between 1870 and 1914 was associated with a certain social opening of university studies and their related academic careers towards below. Two strata benefitted above all from the broadening of the recruitment base: sons of the rapidly growing new middle class of public officials and sons of trade and industry. In 1886-7 a total of 951 children of Prussian elementary school teachers were enrolled at Prussian universities, but by 1911-12 there were 2,451. During the same time period, the number of students from middle and lower official families increased from 1,478 to 3,393. Students from this new bureaucratic *Mittelstand* alone composed more than one-third of the absolute enrollment increase at Prussian universities. The second third of the absolute growth was made up of trade and industry (increasing from 4,461 to 7,601). The remaining third of the growth came from various social groups.

Second, in the critical 1880s and 1890s, when the privileged classes (nobles, propertied and educated bourgeoisie) assumed a defensive position in order to curtail the growing status competition of the middle and lower classes for access to academic careers, the petit bourgeois strata of the state bureaucracy were more resistant than the independent and self-employed strata of artisans, small merchants and peasants.

In 1905 the proportion of independent artisans and small merchants in the heterogeneous group of commercial and industrial parents made up about 80%, by 1911-12 only 67%. Within the swollen group of merchants and industrialists, the share of poorer students from small business backgrounds decreased in favor of their more prosperous rivals from the upper middle class. This relative decline in the sons of artisans and small merchants was a consequence of the differentiation of school types which emerged in connection with the general overcrowding crisis of the 1880s and 1890s. Along with the granting of formal parity for the three nine-year complete institutions (*Gymnasium*, *Realgymnasium*, *Oberrealschule*), the incomplete schools, with their shorter programs of study (without university access) were greatly expanded. The *Realschule*, without Latin, or the higher *Bürgerschule*, favored by the Prussian educational administration and by various reform groups, was to channel a part of the increased demand for education into an intermediate level of entitlements. This *Realschule* was intended as a social integrator for the commercial and bureaucratic petite bourgeoisie whose desire for education had led to greater social competition for access to academic careers. The special significance of the *Realschule*, promoted as "school of the future for the middle and bureaucratic strata," lay in this double function of simultaneously broadening and limiting educational opportunities.²⁴

The as yet only meager data on the social origins of secondary school pupils in the Empire indicates that this deflection strategy, disguised as "support of the *Mittel-*

24. See D. K. Müller et al., "Modellentwicklung zur Analyse von Krisenphasen im Verhältnis von Schulsystem und staatlichem Beschäftigungssystem," *Zeitschrift für Pädagogik, Beiheft* 14 (1977), 37-77; Halfmann in W. Lexis, *Die Reform des höheren Schulwesens in Preußen* (Halle, 1902), 361: "It has the significant social task of intellectually elevating the middle class, positioned between the capitalists and the proletariat, and of educating it for an understanding of its contemporary duties." Prussian Ministry of Culture ed., *Verhandlungen über Fragen des höheren Unterrichts*. Berlin 4. bis 17. Dezember 1890 (Berlin, 1891), 692.

stand," apparently succeeded at least in part in restricting competition for privileged careers. Between 1876 and 1896, artisans' sons were ever more "displaced" from the full gymnasia and redirected into *Realschulen* with fewer entitlements, which still offered a limited possibility of social advancement but excluded access to the coveted academic careers.

This defensive strategy was less successful in the case of the bureaucratic petite bourgeoisie. Most striking is the persistent striving for education of the sons of non-academic officials and elementary school teachers who were discouraged neither by the oversupply propaganda nor by lengthy unsalaried waiting periods before appointment. The stamina of this strata was itself a product of the dynamism of the public entitlement and career system which was threatening to exclude them. As officials on the middle and lower rungs of this hierarchy, the fathers of this student group had learned in their professional lives what educational qualifications meant for entry into the different ranks and for advancement within a career. They passed this direct experience on to their sons who strove to pursue advancement on precisely those levels where their non-academically trained fathers had encountered insurmountable barriers. Unlike artisan and peasant children, the upwardly mobile sons of bureaucratic officials were already part of the entitlement structure, thought in its categories and were acquainted with its methods and social mechanisms. Therefore it was far more difficult to deflect the aspirations of this group. The futility of the government's attempt to restrict the advancement of this state-employed strata illustrates that the higher bureaucratic apparatus was not only the beneficiary but also the captive of the system which it had produced. This nexus which was already apparent in the Empire, became extremely clear at the end of the 1920s. The Prussian Minister of Culture, C. H. Becker, deplored the growing functionalization of courses of study as a bureaucratization of "our beautiful and glorious scholarship."²⁵

Third, because of the cumulation of the cyclical deterrent, displacement and attraction effects the majority of students who had reached the university from the lower middle classes during the expansion concentrated in the less prestigious "open" faculties. The exclusive faculties or careers remained largely untouched by the throng of petit bourgeois rivals. Before World War One, 71% of sons of middle and lower officials and 77% of sons of elementary school teachers were enrolled in the "open" faculties, already 61% and 64% of each in the philosophical faculty. The quota of academics in the teaching fields was only half as great as in the medical and legal faculties. The thesis that the "open" philosophical faculty became even more open during the expansion phase is emphatically confirmed when one considers financial aid as a further indicator. In 1911 a good 54% of all financial support, i. e., individual aid through scholarships, free lunches, postponement of and exemption from fees, was for students in the philosophical faculty. Whereas at the end of the 1880s only one-fifth of all aid officially used for scholarships and free lunches was allotted to students in the philosophical faculty, in 1911-12 half of all financial aid went to their support.

25. R. Graf von Westphalen, *Akademisches Privileg und demokratischer Staat* (Stuttgart, 1979), 136ff.

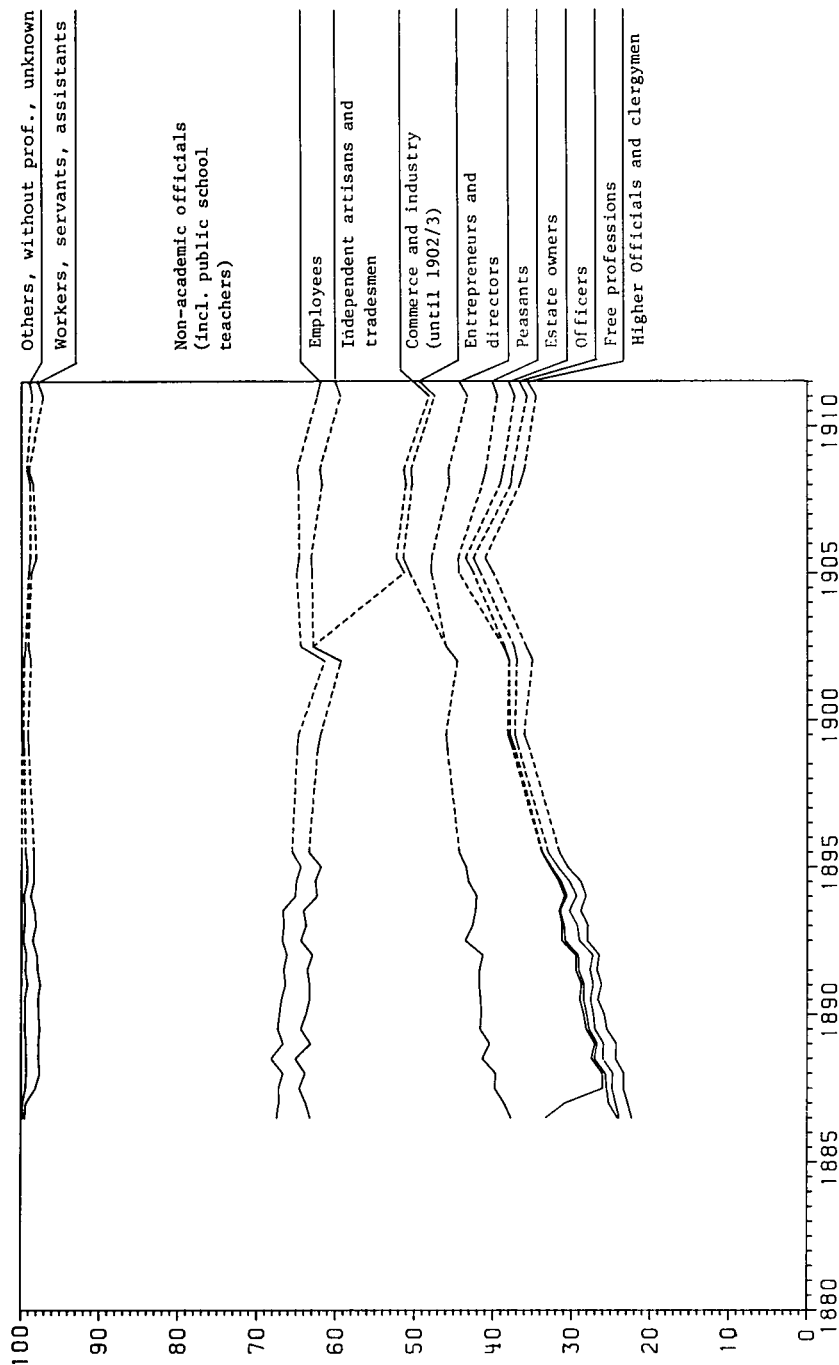
Fourth, the social order of faculties experienced one important shift before World War One. The traditionally open faculty of Protestant theology moved a step "up" in the hierarchy; it developed towards the two exclusive medical and legal faculties and away from the philosophical and Catholic theological faculties. Three causes combined here. First, the known deterrent and displacement effects of the oversupply crisis at the turn of the century contributed to greater exclusivity due to diminished demand. Second, the increase in students from the lower middle class largely passed by the faculty of Protestant theology, since all major academic careers, except for the clergy, grew considerably during the Empire. Third, the prestige loss due to secularization brought about a collective reorientation of biographical decisions. The great majority of sons of middle and lower officials changed its perspective at the end of the 1890s. The future no longer belonged to spiritual callings in the church but to secular teaching in the schools. A similar rethinking took place in the artisan and peasant strata who had made up a large contingent of candidates for the clergy well into the last third of the 19th century. Medicine became even more attractive for those from rich families and for the majority teaching became a realistic alternative. As the social profile of Protestant theological faculties reveals (Graph 8), children of all categories of bureaucrats made up three-fourths of the theological candidates (76%). The career became more exclusive because artisan and peasant sons were less frequent and the proportion of academic children grew since a solid stock of traditionalist families remained faithful to the calling. In contrast to the general trend of diminishing academic proportions, during the previous decade the Protestant theological faculty showed a considerably greater percentage of academic children than the exclusive legal and medical faculties. From the expansion phase of the 1860s on, the philosophical faculty took up the legacy of the theological faculty in two respects. It assumed the lead in enrollments and now became the great catch basin into which poured the flood of the educationally motivated from middle and lower classes who had earlier studied theology.

Four Types of Crises:

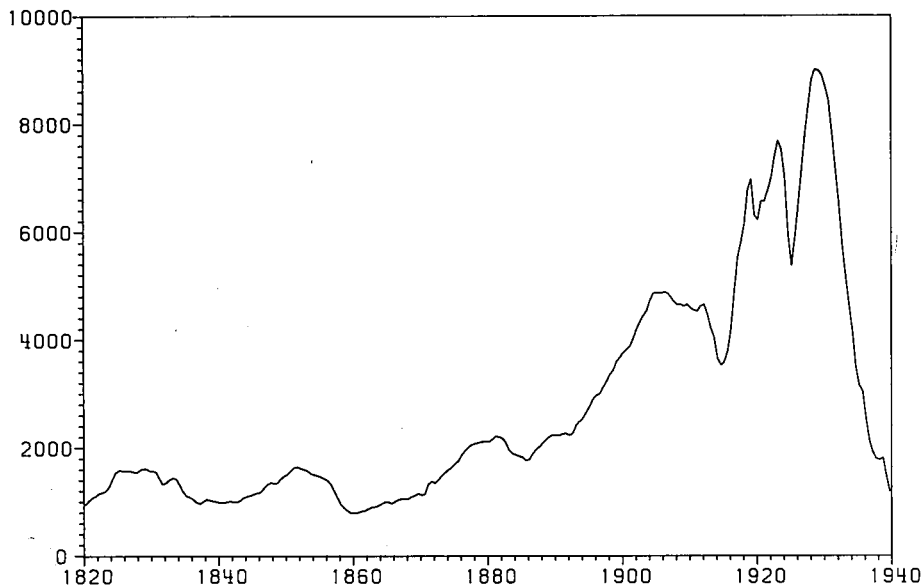
If the analysis includes the varying growth conditions as a second dimension along with the different recruitment bases, then the proposed cycle theory must be broadened. Until the beginning of the modern growth in academic careers in the last third of the 19th century, two crisis types can be distinguished. The first relates to professions with a relatively exclusive recruitment base (such as medicine and law). Cyclical fluctuations were relatively insignificant since deterrent and attraction effects of changing professional prospects encountered a comparatively stable recruitment base and had a correspondingly small impact on selection. Student enrollments in the law faculty at old Prussian universities embody this type (Graph 9).

The second variant relates to professions with a relatively open recruitment base (such as the Protestant clergy). In this career, cyclical fluctuations in demand rose and fell with steady intensity. Because of strong deterrent and attraction effects on the unstable recruitment base, severe oversupply and deficit crises periodically succeeded each other. Enrollments in Protestant theological faculties at old Prussian universities embody this second crisis type (Graph 10). For instance, enrollments in the Protestant theological faculty in Göttingen rose and fell between 1767 and 1940

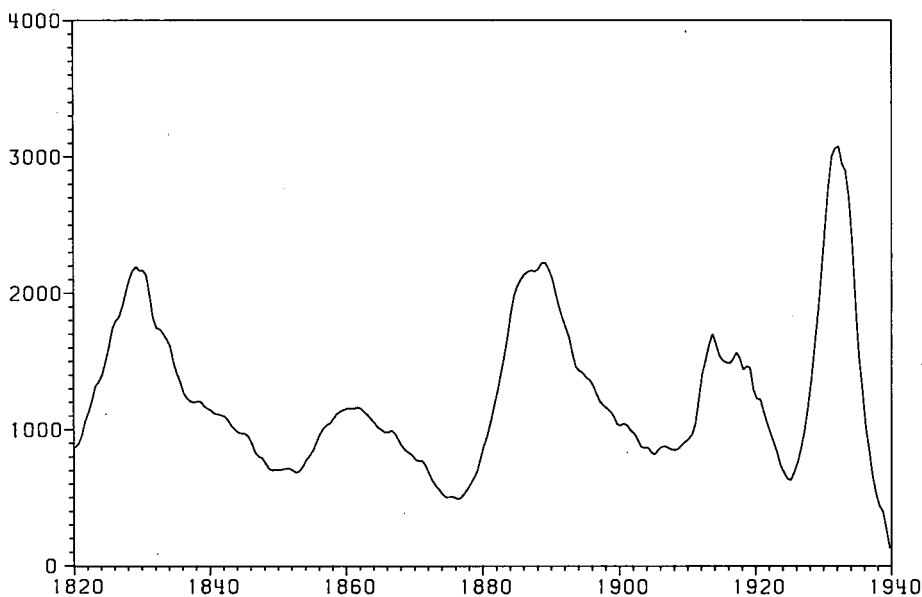
Graph 8: Social Profile of Prussian Students in Protestant Theology Faculty
(Proportion of students according to fathers' profession)



Graph 9: Students of the Law Faculty at Old Prussian Universities



Graph 10: Students of Protestant Theology at Old Prussian Universities



on a long-term stable level with fairly regular fluctuations. This remarkable steadiness can be explained by looking at the job market on which the faculty was functionally based. The regional areas of supply and demand largely coincided and formed a relatively closed system. The number of positions for pastors and other clerical appointments in Hanover remained constant over generations. As one can see by the examination and candidate statistics which the Hanoverian Consistory continually and carefully compiled, at least since the beginning of the great prerevolutionary oversupply crisis, enrollment cycles corresponded closely to deficit and oversupply phases for clergymen. The higher church bureaucracy was very much aware of the regular fluctuations in candidates and understood their recurrence as a natural fate to which the whole church as well as individual clerical candidates had to submit patiently. Faced with the frightening influx into this career in the *Vormärz*, they reassured themselves with the insight that "both the ebb and flood tide have often alternated in the supply of our candidates. The memory of old preachers confirms that this is inherent in the nature of things."²⁶

A cyclical structure similar to that of the Protestant theological faculty in Göttingen is apparent in numerous other universities. The second crisis type is especially obvious at the Prussian universities in Breslau and Königsberg and in the non-Prussian institutions in Erlangen and Heidelberg.

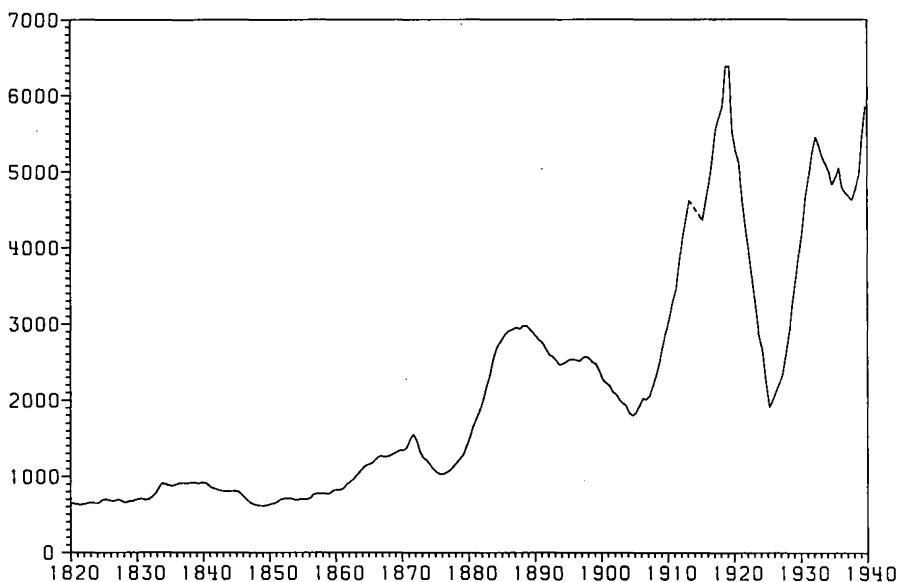
The two first types embody the structural pattern of periodic recurrence of oversupply and deficit under relatively stable conditions. Cyclical fluctuations in academic demand oscillated around an almost constant "normal" level. Under growth conditions from the last third of the 19th century on, this structural pattern persisted, but oversupply and deficit recurred periodically on an increasing scale, depending upon growth. Cyclical downswings returned to different levels. Fluctuations of enrollments grew more intense according to respective conditions. Since, as a rule, each expansion was connected with a periodic opening of the career to "below," even the relatively exclusive courses of study generally broadened their access during growth phases.

A third crisis type can be defined for careers with a relatively exclusive recruitment base during growth conditions. The social mechanisms which characterized this version during fluctuations can be studied especially well in the medical faculties. The particular pattern of effects which together governed access chances kept this career relatively exclusive, despite a temporary "downward" opening during expansion phases and maintained its distance from "open" careers. Even during growth, the double selectivity of oversupply and deficit replicated and confirmed the hierarchical structure of academic professional reproduction. Although the recruitment bases shifted in the short range, "downward" during deficits and "upward" during oversupply, the more exclusive careers remained elitist and the open careers relatively accessible over generations in a complex balance. Enrollments in the medical faculties of old Prussian universities and at Erlangen embody this third variant (Graph 11).

If openness and growth coincide in a specific recruitment pattern, then the cumulative effects become most evident. The secondary teaching career embodies this fourth crisis type. It was relatively open and expanded rapidly up to the First World War. Oversupply and deficit crises made themselves keenly felt. Favorable prospects

26. *Vierteljährliche Nachrichten von Kirchen- und Schulsachen* (1836), 43–46; *ibid.* (1838), 45 ff.

Graph 11: Students in the Medical Faculty at Old Prussian Universities



in open careers unleashed unprecedented attraction effects under expansion conditions which promised especially swift appointment and promotion. Because the "demand" was so great, the subsequent overcrowding was so large; in turn, strong deterrent effects produced recurrent deficits, etc. Three special investigations concerning the oversupply crises in secondary teaching have opened the way to a comparative historical analysis from the prerevolutionary period through the Empire to the Third Reich. The comparison of the three successive crises demonstrates that the problem of cycles of oversupply and deficit intensified each time.²⁷

Duration and Structure of Long Cycles:

Since research in this area is only beginning, no absolute answers can be formulated concerning the duration and structure of the long cycles of enrollments in certain fields of study. Several hypotheses emerge which must be tested in further analyses. First, the completely deviant pattern of Catholic theology is confirmed here as well (Table 2). The priesthood clearly exhibited the longest cycles (40–45 years). The analysis of the functional causes for this remarkable divergence from the general struc-

27. Herrlitz/Titze, "Überfüllung als bildungspolitische Strategie"; A. Nath, "Der Studienassessor im Dritten Reich," *Zeitschrift für Pädagogik* (1981); and H. Titze, "Lehramtsüberfüllung und Lehrerauslese."

ture suggests unusual recruitment conditions. Because of celibacy the priesthood was the only academic career in which professional inheritance played no role. The repeatedly emphasized broad recruitment from the middle and lower strata must also be taken into account. The steering efforts of the Catholic hierarchy also should have had a considerable effect. These complex special conditions lead one to expect that, in comparison to all other careers, long deficit phases were typical for the priesthood.

Second, the cycles in the major careers (Protestant clergy, lawyers, doctors, teachers) seem to become shorter as they approach the present. Because of the incomplete sources before 1830, the contraction thesis can be tested at only a few individual universities for which suitable data are available. Göttingen University (Table 2) demonstrates that the two cycles at the end of the 18th century and during the prerevolutionary period were considerably longer than the subsequent waves in the 19th and 20th centuries. The point after which they systematically shorten appears to lie in the mid-19th century.²⁸

For the time being, the functional prerequisites of this actual shortening of cycles can only be formulated generally and hypothetically. The transformation of communication structures since the mid-19th century doubtlessly played a considerable role. The social mechanisms which lay beneath the cyclical recurrence of oversupply and deficit accelerated, and participation in exchange processes intensified. Increasing administrative control and interest group organization of the academic professions in the last third of the 19th century also played a significant role.

Third, the structure of the waves does not yet reveal any "learning processes." Largely unaffected by changing political conditions, oversupply and deficit cycles in academic careers recurred in a "natural" manner from enlightened absolutism to the present. This essay attempted to expose such "natural" necessity as a socially produced mechanism. It therefore becomes apparent that specific social interests structured the process, and gave it direction and remarkable stability. In comparison with the dynamics of this "system development" itself, the freedom for political decision was relatively small.

There is something to be said for the hypothesis that the specifically German entitlement system which functionally links "education" and "society" can be interpreted both as program and product of this development. Its fundamental characteristics were institutionalized in the last decades of the 18th and first decades of the 19th centuries. The entitlement structure was permanently shaped by the neohumanist conception of the union of state and culture. The sociological consequence of this meritocratic conception was a "functional" stratification theory which was "bureaucratically" realized in the 19th century (in a hierarchical career system in public service as a prototype for the private sector) under the pressure of social interest groups and specifically German conditions.²⁹

28. The duration of the cycles was studied through auto-correlation analysis which indicates that the transition from longer to shorter waves occurs around 1850.

29. R. von Westphalen, *Akademisches Privileg*; B. Wunder, *Privilegierung und Disziplinierung. Die Entstehung des Berufsbeamtentums in Bayern und Württemberg (1780-1825)* (Munich/Vienna, 1978).

At the price of cyclical recurrence of oversupply and deficit (along with other "social costs") this German entitlement system governed the social recruitment of academic professions and effectively legitimized their status privileges for over 150 years. The function of the entitlement system became more institutionally entrenched, comprehensive and tightly structured with each new examination statute and career regulation. Established over generations, this system grew increasingly impervious to political efforts to transform it fundamentally. Cultural officials in the Empire still had illusions of control but their successors in the Weimar Republic no longer shared them, because they were aware of their impotence.